FlowVis®

Flow Meter - Metric Models

English
Rev.4.5.1M

Operating Manual

IMPORTANT NOTE: For the most up-to-date version of this manual, please visit www.h2flow.net/product-literature

DN40/50/80/100 models

DESCRIPTION

FlowVis® is a revolutionary, patented solution for accurate and reliable flow rate measurement in fresh water applications such as swimming pools, spas, fountains, water features, irrigation systems, well water and solar systems.

Using a design that is based on 'mass flow' principles, the FlowVis® provides many benefits that include:

- Ease of installation without the need to have 15x of straight pipe
- Installation flexibility that allows orientation in any position, e.g., horizontal, vertical or even upside-down
- Long life without sticking floats or paddle wheels
- Combined Flow Meter and Check Valve for DN40 and DN50/65.

SERVICE REPAIR KIT

A service repair kit is available for all models:
- DN 40 and DN 50/65 (Art.Nr. 90024)
- DN 80 and DN 100 (Art.Nr. 90025)

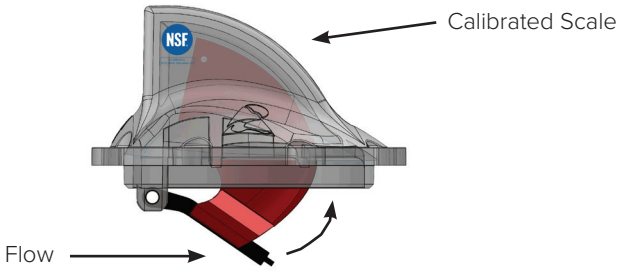
The repair kit comprises:

- 1 x o-ring
- 1 x spring
- 1 x flapper and indicator arm (only 90024)
- 1 x pivot pin

For all other parts, please contact H2flow at (+1) 419-841-7774 (International).

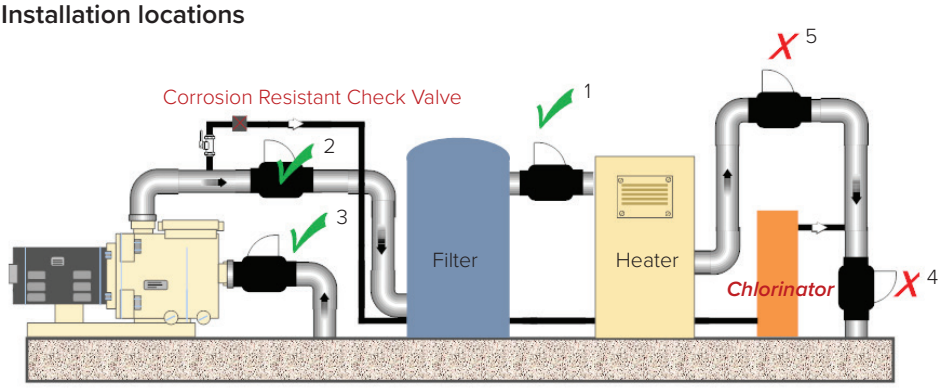
CONCEPT

As flow increases, the flapper moves forward toward its fully open position. The flapper's angular position is directly related to flow rate through the valve body / tee. A calibrated scale on the valve's lid provides a highly accurate reading of the flow rate.



INSTALLATION

Installation locations



1 = Best
2 = Very Good
3 = OK, but not ideal
4 = Bad
5 = Really bad

NOTE: The above graphic only relates to applications that use erosion style chemical feeders. In all other circumstances, the FlowVis® can be installed in any of the locations shown.

IMPORTANT NOTE: Before installing the FlowVis®, please refer to the section on Page 3 regarding chlorine feeders.

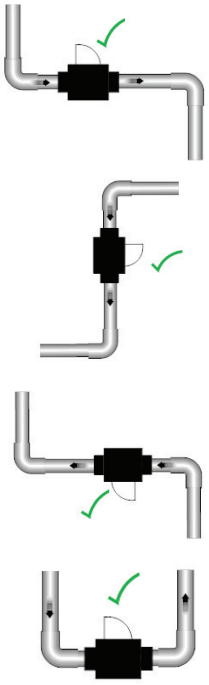
Installation of FlowVis® should be in accordance with the following instructions.

Normal plumbing procedures such as cleaning, priming and gluing of fixtures should be followed in order to avoid leaks.

Unlike other flow meters, FlowVis® is not affected by flow stream disturbances caused by its proximity to pumps, elbows, tees, valves, etc. FlowVis® does not require specific straight pipe lengths before or after its point of installation, and can be installed close to, or even adjacent to, other plumbing fittings. FlowVis® can be installed either horizontally or vertically.

Pay particular attention to the system's direction of flow and make sure that the arrow on the lid of the FlowVis® is pointing in the correct direction. For the DN80 and DN100 versions, the Tee will have an additional arrow on one of its bosses. In the event that the FlowVis® is inadvertently glued into the plumbing in the wrong direction, simply remove the (8) screws holding the lid in place and rotate the entire lid assembly by 180˚.

NOTE: *Always remove the FlowVis® lid assembly prior to gluing in the valve body.*



NOTE: *When selecting a physical location to install FlowVis®, be sure to allow accessibility to read the scale on the lid.*

CHLORINE FEEDERS

IMPORTANT DISCLAIMER

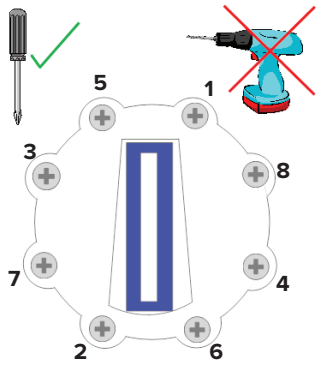
Material selections such as Viton and Hastelloy c-276 ensure that FlowVis® will provide many years of trouble-free operation in normally treated, sanitized pool water conditions. However, certain brands and designs of inexpensive chlorine feeders are known to fail and release high concentrations of chlorine or even chlorine gas into the surrounding filtration system. When this occurs, any equipment that comes into contact with these abnormal levels of chemicals will experience rapid and catastrophic damage. Inspection of any failed components will quickly and conclusively confirm the cause of the damage and, under these circumstances, the product's **warranty will be void**.

Under no circumstances should FlowVis® be used as a 'check valve' to prevent the effects of these Chlorine Feeders damaging other equipment such as Heaters.

TIGHTENING LID SCREWS

When removing and re-installing the FlowVis® lid assembly, it is important to adhere to the following procedure:

1. Make sure that the o-ring on the underside of the lid is undamaged, lubricated with silicone (such as Boss 820) and is in-place without twists.
2. Ensure flapper hinge pin is centered.
3. Carefully lower the lid onto its valve body (or Tee in the case of the DN80 and DN100 models), making sure that the o-ring stays in place.
4. Insert by hand the (8) stainless steel screws but do not tighten at this stage.
5. Using a hand Phillips-head screwdriver, slowly tighten the screws in a diagonal pattern, per the sequence to the right. Do not fully tighten one screw before proceeding to the next, i.e., pull them down slowly multiple times to avoid stressing and cracking the lid. Screws should be tightened to a final torque of 34 Nm.



OPERATION

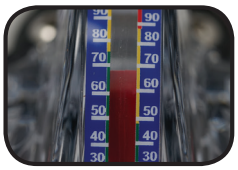
The FlowVis® is factory-calibrated to be extremely accurate across its full operating range. Any perceived 'inaccuracy' is related to the viewing angle at which the scale is being read. To avoid so-called 'parallax error', it is important to position your eye so that you are looking squarely at the tip of the indicator arm. To achieve this, simply move your head so that you just lose sight of the vertical leading edge of the red arm.

X

(1) Indicator arm is being viewed too far forward / near the rear of the lid.

✓

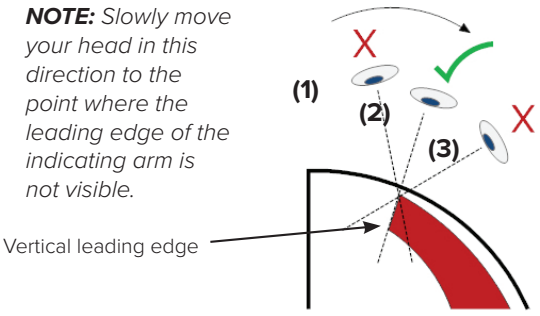
(2) Indicator arm is being viewed correctly.



X

(3) Indicator arm is being viewed too far back / front of the lid.

NOTE: *Slowly move your head in this direction to the point where the leading edge of the indicating arm is not visible.*



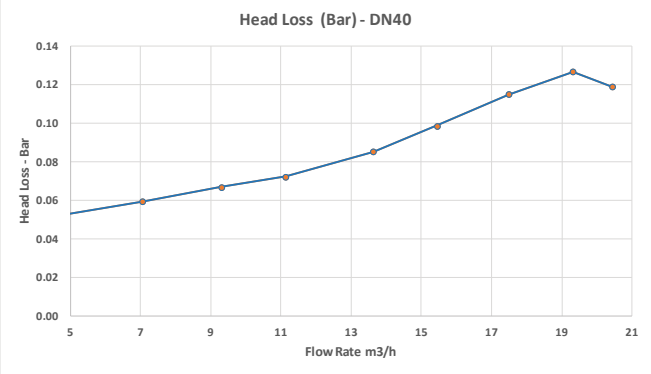
MAINTENANCE

Although FlowVis® is designed to be maintenance-free, periodic checks should be made to the following:

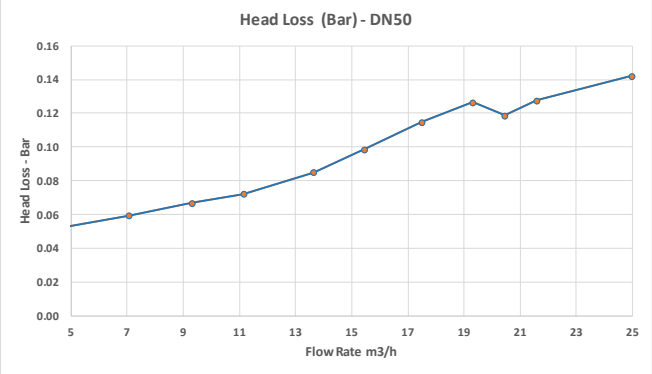
Condition	Check for	Remedy
Leak around lid seal	O-Ring Failure	Replace O-Ring
Leak from lid	Cracks in lid	Order new lid from supplier
Higher flow reading than normal	Broken or weak spring	Replace spring
Lower flow reading than normal	Indicator arm stuck due to debris	Remove lid and clear debris
Flow indicator stuck at one position	Debris between indicator arm and lid	Remove lid and clear debris
Indicator always at max flow when pump running	Broken spring	Replace spring
Flapper seal crinkled	Chlorinator check valve failure	Repair chlorinator, order FlowVis® Service Repair Kit. Consider moving FlowVis® to a different location (see 'Chlorine Feeders' section on pg. 3).

HEAD LOSS DATA

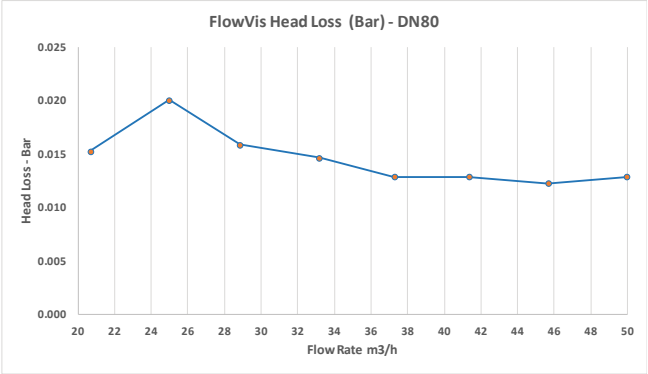
Head Loss (DN40):



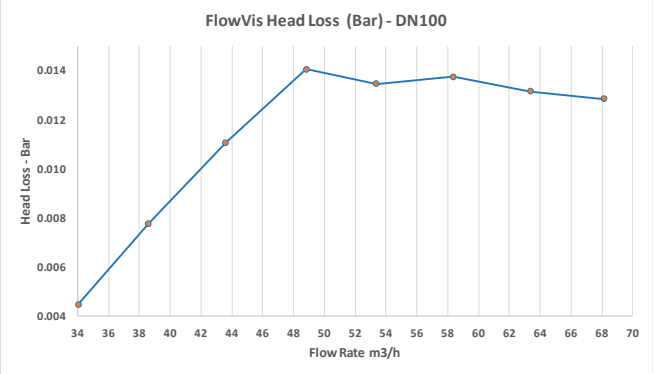
Head Loss (DN50):



Head Loss (DN80):



Head Loss (DN100):



TECHNICAL DATA

Materials used:

Item	Material / Comments
Lid	Polycarbonate
Valve Body (DN40 and DN50/65)	CPVC
Lid Screws	304 Stainless Steel
O-ring	Silicone Lubricated Elastomer
Scale label, Product label	Polycarbonate
Pivot Pin	Hastelloy c-276
Spring	Hastelloy c-276. 316 Stainless Steel prior to Nov. 2015
DN80 and DN100 Tee and reducing bushings	PVC
Indicator Arm	ABS
Flapper DN40 and DN50/65	PPEPS
Flapper Seal DN40 and DN50/65	Viton
Lower Flapper (DN80 and DN100 only)	ABS
Interconnecting link (DN80 and DN100 only)	316 Stainless Steel
Lower Retaining Pins (DN80 and DN100 only)	316 Stainless Steel

Operational Data:

Function	Models	Comments
Max working pressure	All models	3.5 Bar
Accuracy	FV-C-M-DN40 and FV-C-M-DN50/65	Average: 97.9% / 98% / 97.5%
Accuracy	FV-M-DN80 and FV-M-DN100	Average: 98.6% in straight pipe
Min / Max operating ambient temp	All models	0˚C / 60˚C
Periodic calibration	All models	None required
Design life	All models	Greater than 5 years

WARRANTY

For a copy of the FlowVis warranty, please contact the factory.